# CENTRAL INLAND FISHERIES RESEARCH INSTITUTE

**(INDIAN COUNCIL OF AGRICULTURAL RESEARCH)**

## BARRACKPORE : KOLKATA-120 : WEST BENGAL

**Ph. 2592-1190/1191 , FAX No. 2592-0388/2545-1063**

## TENDER NOTICE

## Tender No. 1/1/2012-13/S/Equip/2

The Director, CIFRI invites sealed tender from the Manufactures/Authorized Dealers/reputed firms for the supply and installation of under mentioned equipments. The equipments at Sl.No.1 to 40 are to be supplied at the places indicated against each below. The Tender form and specification details may be downloaded from the Website www.cifri.ernet.in.

| Sl. No. | Name of the equipment | Quantity | Amount of EMD | Place where to be Delivered |
|---|---|---|---|---|
| 1. | **Image Documentation System for protein and nucleic acid analysis** | 1 No. | 15,000 | Barrackpore |
| 2. | **Total Organic Carbon Analyzer** | 1No. | 15,000 | Barrackpore |
| 3. | **Field Spectrometer** | 1 No. | 10,000 | Barrackpore |
| 4. | **Portable Chlorophyll Meter** | 1 No. | 10,000 | Barrackpore |
| 5. | **Microscope with Image Analysis Software** | 1 No. | 10,000 | Barrackpore |
| 6. | **Dissecting Zoom Microscope with Video Adapters for Image Acquisition** | I No. | 10,000 | Barrackpore |
| 7. | **Bacteriological Incubator** | 1 No. | 5,000 | Barrackpore |
| 8. | **Cages & Pen Installation** | | 10,000 | DVC Reservoir, Mithon |
| 9. | **U. V. Visible Spectrometer** | 1 No. | 12,000 | Barrackpore |
| 10. | **Electronic precision weighing balance with battery backup (two models)** | 1No. each | 4,000 | Barrackpore |
| 11. | **Portable electronic water depth gauge** | 2 Nos. | 4,000 | Barrackpore |
| 12. | **GPS equipment** | 1 No. | 1,000 | Barrackpore |
| 13. | **Portable turbidity meter (nephalometer)** | 1 No. | 2,000 | Barrackpore |
| 14. | **Multiparameter water quality probe and meter** | 1 No. | 20,000 | Barrackpore |
| 15. | **Microtome** | 1 No. | 6,000 | Barrackpore |
| 16. | **Portable water flow probe (meter and sensor)** | 2 Nos. | 5,000 | Barrackpore |
| 17. | **Thin sectioning and polishing machines for fish otolith study** | 1 No. | 8,000 | Barrackpore |
| 18. | **Thermostatic heating oven with timer** | 1 No. | 4,000 | Barrackpore |
| 19. | **Digital SLR camera with standard accessories** | 1 No. | 1,500 | Barrackpore |
| 20. | **Life Jackets** | 8 Nos. | 1,000 | Barrackpore |
| 21. | **Salinometer** | 1 No. | 1,000 | Barrackpore |
| 22. | **Microscope with high resolution image processing accessories and software** | 1 Set | 24,000 | Barrackpore |
| 23. | **Plankton net fitted with flow meter** | Two | 6,000 | Barrackpore |
| 24. | **Sedgwick Rafter Counter Cell** | Two | 1,000 | Barrackpore |
| 25. | **Portable aerators for fish transportation** | Four | 1,000 | Barrackpore |
| 26 | **Statistical software for multivariate analysis** | Two user license | 1,500 | Barrackpore |
| 27 | **Desktop computer** | 1 No. | 1,000 | Barrackpore |
| 28. | **U.P.S.** | 1 No. | 500 | Barrackpore |
| 29. | **Printer** | 1 No. | 600 | Barrackpore |
| 30. | **Laptop Computer** | 1 No. | 1,500 | Barrackpore |
| 31. | **Battery Operated Top Pan Balance** | Two | 2,000 | Guwahati |

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|---|---|---|---|---|
| 32. | **Digital pH Meter** | Two | 2,000 | Guwahati |
| 33. | **Tissue Homogenizer** | 1 No. | 4,000 | Guwahati |
| 34. | **Deep Fridge (-20°C)** | 1 No. | 1,000 | Guwahati |
| 35. | **Quartz Distilled Water Plant** | 1 No. | 3,000 | Guwahati |
| 36. | **Mini Gel apparatus** | 1 No. | 2,000 | Guwahati |
| 37. | **Water Bath** | 1 No. | 2,000 | Guwahati |
| 38. | **Pipette Controller** | Two | 1,000 | Guwahati |
| 39. | **Western Blot (electro transfer system)** | 1 No. | 1,000 | Guwahati |
| 40. | **PA System for Conference Room** | | 1,000 | Guwahati |

Sealed tenders are to be submitted to the Assistant Administrative Officer (Stores), CIFRI, Barrackpore within the scheduled date.

1. Last date of submission of Tender - 21.01.2013 (up to 16.00 PM)
2. Date of opening of Tender - 22.01.2013 (at 15.00 PM)
   (in presence of bidders, if any)

Assistant Administrative Officer
(Stores)

# TENDER DOCUMENT
(2012-13)

Central Inland Fisheries Research Institute
(Indian Council of Agricultural Research)
Barrackpore, Kolkata – 700 120, West Bengal
**Phone No. 033 2592 1190/91**
**FAX No. 2592-0388/2545-1063**

# Annexure – I

## TERMS AND CONDITIONS

1. A bidder can submit quotation on behalf of only one manufacturer for an item. In case the agents bid contains quotations on behalf of more than one manufacturer each such bid has to be accompanied by a separate tender form and EMD for each such quotation and authorization from the respective manufacturer.

2. The following documents are to be enclosed with the quotation:-

    a) Copy of the enlistment letter with the Government Departments, if any.
    b) Credentials about undertaking this type of supply in the past
    c) Sales Tax Registration Number, PAN.
    d) Income Tax/Sales Tax Clearance Certificates.

3. The specification of the items are enclosed in ANNEXURE-II. The rate should be quoted for FOR, Barrackpore.

4. In case of non-submission of EMD, quotation will not be considered. The EMD of unsuccessful bidders will be returned within one month of finalization of quotation. Earnest Money as detailed in Annexure-II separately for each item in the shape of Demand Draft drawn in favour of "ICAR-Unit-CIFRI" payable at State Bank of India, Barrackpore (Branch Code-0029) must be attached with the quotation. No other form of deposit is acceptable. The EMD of successful bidders will be returned against the Performance Security. If Performance Security is not submitted, the EMD will be adjusted against that and the balance amount will be withheld from the bill of supplier as performance Security which will be released as per condition in clause 18. The amount of EMD will be forfeited if supply is not affected during the given time and contract will stand cancelled.

5. Tender once submitted should remain valid for 90 (ninety) days for acceptance.

6(a) The bid submitted should contain two envelopes containing the Technical and Financial bid superscribed clearly on the envelop. The single bid will not be accepted.

6(b) The tender cover should be superscribed as "Tender for supply of Equipment (Item No._____)" as detailed in Tender Notice (Item No.1 to 13)

7. The sealed quotations separately for each item should be submitted in the tender box kept with AAO(Stores) within the stipulated date and time. It could also be sent through post to "The Assistant Administrative Officer(Stores), Central Inland Fisheries Research Institute, Barrackpore, Kolkata – 700 120, West Bengal" so as to reach before due date and time. The Institute does not take responsibilities for delay in postal delivery.

8. The last date for the receipt of tender is **21.01.2013** up to **16.00 hours**. Tender (Technical bid) will be opened at **15.00 hours** on **22.01.2013**

9. Rates quoted for the item should show the taxes/duties separately with percentage of taxes clearly stated. If taxes, duties are not shown separately, it will be presumed that they are included in the price and that no subsequent claim for taxes/duties will be entertained.

10. Any overwriting/erasing in the Tender must be authenticated under the seal and signature of the tenderer.

11. Incomplete tender or tenders received after the last date or those not in keeping with the terms and conditions set forth therein above are liable to be rejected.

12. In case of imported items, bidders are to quote the rate in foreign currency on FOB and CIF basis. L.C equivalent to 90% of the order value will be opened in State Bank of India. The balance 10% will be released after satisfactory installation, demonstration of the item by the Indian Agent and receipt of document & warranty certificate if any.

13.a) The Institute will bear the following charges related to opening of LC :-

i) Bank charge for opening of LC.

ii) Bank charges for first amendment in the terms and conditions of L.C.

iii) Custom clearance at Indian port/airport

iv) Transportation from Indian port/airport to the Institute

b) The firm will have to bear the following charges :-

i) All bank charges outside India

ii) The bank charges related to amendment of terms & conditions of L.C. other than first one.

14. Tax deduction at source will be made wherever applicable.

15. Payment will be released only against the pre-receipted bill within 30 days of installation, commissioning & demonstration of equipment.

16. LIQUIDITY DAMAGES:-

i) In all cases of delay by the supplier in delivery of the Equipment or any or all of the goods or to perform the services forming the subject matter of this contract beyond the periods specified in art..., other than a delay (Force Majure), the buyer shall have the right without prejudice in its other remedies under this contract, to claim liquidated damages amounting to 0.5% per week of the delivery price of the delayed equipment/goods or performance of services for each week/month or part thereof of delay until actual delivery or performance. However such damages shall not exceed 10 % of the delivery price of the equipment/goods or services of which the delivery or performance has been delayed.

ii) The supplier shall remit the amounts due to Buyer under clause (i) above, within 30 days of receipt of demand from the Buyer. If the supplier fails to make the payment within the period of 30 days, the Buyer shall have the right to recover it from other payments due to the supplier.

iii) In the event the buyer terminates the Contract, the Buyer shall also have the right to procure, upon such terms and in such manner as it deems appropriate, equipment/goods or services similar to those undelivered, and the supplier shall be liable to Buyer for any excess cost incurred by the Buyer for procuring such similar equipment, goods or services. However, the supplier shall continue performance of the contract to the extent not terminated.

17. The supplier will have to arrange for Way Bill if required for the supply of stores. All the documents required in this regard will be supplied by the Institute.

18. Performance Security:-

The performance security is payable 10% if it is not submitted then the same will be deducted from the final bill. The performance security will remain valid for a period of the sixty days beyond the date of completion of all contractual obligations of the supplier including warranty obligation.

19. The bidder has to sign the document and affix the seal of the firm in token of having agrees to the terms & conditions. This signed document will be submitted by the bidder along with his/her quotation failing which his/her quotation will not be considered. The contract will get established on issuing the supply order by the Institute.

**20. Resolution of disputes:**

i) All disputes, these agreements or questions arising out of or in connection with this contract or relating to its construction or performance shall be settled amicably by mutual consultation. If after 90 days the parties have failed to resolve their disputes or differences by mutual discussions, the matter shall be referred by arbitration in accordance with the Arbitration and Conciliation Act 1996. The Arbitral tribunal shall consist of an arbitrator nominated by the Buyer and another nominated by the supplier. The third arbitrator shall be chosen by the two arbitrator so appointed by the parties and shall act as the presiding arbitrator. In case of failure of two arbitrator appointed by the parties to reach a consensus about the third arbitrator (Presiding arbitrator) within a period of 90 days from the appointment of the arbitrator appointed subsequently, the presiding arbitrator shall be appointed by the Indian council of Arbitration. The decision of the majority of the Arbitrator shall be final and binding on the parties.

ii) The Parties shall continue to perform their obligations under this Contract during the conciliation/arbitration proceedings. The cost of arbitration (including the fees and expenses of the arbitrators) shall be shared equally by the parties, unless the award specifies otherwise.

iii) This article shall survive the termination of this contract.

**21. Spares:**

i) In addition to the initially procured spares and tools. Supplier undertakes to supply future requirement of spares and tools required for operation and maintenance of the equipment for a period of 10 years from the date of delivery of the equipment. Spares and other components that may be supplied by the supplier subsequent to this Contract may not be identical with the supplies now being made, but will be interchangeable.

ii) The supplier shall treat the Buyer as one of its most favoured customers in charging prices for supply of spares mentioned in clause I) above. Supplier further undertakes that the prices charge will be as per the spare parts catalogues of the relevant year. The supplier shall furnish to the Buyer adequate copies of such catalogues as and when published. The prices charge by the supplier to the buyer shall in no case be hire than the prices for the same spares charged by him to any other customer.

**22. Warranty:**

i) The supplier warrants that, unless otherwise stipulated in this Contract, all past forming the equipment to be supplied hereunder, shall confirm to the applicable specifications. The equipment shall be supplied in a brand new and unused conditions. The supplier further warrants that all goods supplied under this Contract incorporate all recent improvement in design and materials, and unless provided otherwise in the Contract, shall be free from the faults due to defective design, workmanship and/or materials (except when the design and/or material is required by the Buyer's specifications) , or from any act or omission of the suppliers.

ii) The warranty shall not extend to :

a) Defects caused by neglect improper handling for improper utilization of the equipment by the Buyer;
b) Any part of the Equipment which has been altered after delivery otherwise than by the Supplier or with its written approval; and

c) Any part of the Equipment which has been repaired or modified by the Buyer without the prior written authorization of the supplier's repair and modification schemes.

iii) If the Equipment or any part thereof is proved to be defective as defined in clause (i), the supplier undertakes that provided such defect is reported to the supplier within one year from the acceptance of the equipment or 18 months from the date of receipt by the Buyer of that equipment, whichever is earlier, this supplier shall, without charge, repair or rectify any such defected part or at its option replace such parts with a similar part but free from defect. Any part so replaced shall become the property of the supplier, and if requested, the Buyer shall deliver the defective equipment to the supplier at the Buyer's premises. Any goods repaired or replaced by the supplier shall be delivered at the Buyer's premises without cost to the Buyer.

iv) Any defect found in the equipment/goods shall be reported to the supplier within 60 days of discovery together with complete report as to the manner in which the defect arose. This supplier shall rectify the defect by repair or replacement within a period of 30 days from the date of receipt of notice from the Buyer.

23. The Director, Central Inland Fisheries Research Institute, Barrackpore, Kolkata-700 120, West Bengal reserves the right to accept or reject any or all the tenders either in part or in full without assigning any reasons whatsoever.

## ANNEXURE – II

## Detailed specifications of the Instruments/Equipments/Softwares

### 1. Image documentation system for protein and nucleic acid analysis

Fully autofocus and automatic gel imaging system for nucleic acid and protein detection and quantification, 1-D, 2-D, dot-blot, western blot etc. Should come with dark room, rollout UV-transilluminator with UV shield for easy cutting of desired bands, conversion screens, camera and filters for EtBr, SYBR Green, Safe, other nucleic acid dyes, protein dyes like Coomassie blue, Silver stain, Flamingo, Cu/Zn stain, blotting with Qdots, fluorescein and for colorimetric measurements etc. For medium and large size gels. Mode: Trans UV, white and epi-white, blue; with or upgradable to chemoluminescence. Very low detection limit (Detection limit to be specified). With >4MP peltier cooled CCD camera, motorized lens, 12 bit image capture and 16 bit .tiff, JPG, metafile or better output. With spherical aberration correction. Dynamic range ≥4 order of magnitude. Country of origin must be specified. With one-click image capture with full control on image capture quality. With CFR compliant easy-operating image analysis software with free upgradation having features like image enhancement, automatic quantification, mass and molecular size determination, automatic colony counting, user defined template/reference setting, report generation etc. Should come with in built computer or compatible branded computer (preferably, Intel i5/i7 or higher Core processor, Minimum 3 GB RAM, ≥320GB Hard disk, genuine Windows7 Professional OS, TFT monitor) and UPS. To run at 230 V, 50 Hz.

### 2. Technical Specification of TOC Analyzer

1. PC controlled and/or Stand Alone Mode with all accessories necessary to run the instrument.
2. The instrument should be able to analyse Total Carbon (TC), Inorganic Carbon (IC), Organic Carbon (OC) and if possible, optionally, Volatile Organic Carbon (VOC) and Dissolved Organic Carbon (DOC) in a single analysis cycle.
3. Application: both Solid and Liquid samples (Preferably solid samples like soil, sediments, sludge, plant etc. will be analyzed. In case of liquid samples, other than water, waste water, solutions may also be analysed).
4. Mode: Combustion oxidation at high temperature sufficient enough to oxidize solids samples completely desirably with no catalyst followed by non-dispersive IR detection.
5. IC Pretreatment – Internal acidification, automatic (preferably)
6. Detection limit: May vary from 4 µg/L to 50 µg/L
7. Analytical range: 0.01 to120 mg Total C for solid, 0.004 to 3000 mg/L for liquid
8. Sample size: Solid – 1 to 3 g, Liquid – 100 to 1000 µL
9. Reproducibility: Less than 2% RSD, FSD
10. Analysis time: 3 to 6 min/sample
11. Power: AC 220-240 V
12. LCD display of important operating parameters in case of stand alone mode
13. Ambient temperature range: 10 to 40$^{o}$C

14. Warranty period should be at least one year after the date of installation
15. Essential and quickly replaceable Consumables should be supplied.
16. For PC controlled instruments latest version of software required to run the instruments including options like gas flow, gas shut down, auto baseline background correction, post run analysis, peak editing, calibration etc.
17. PC with latest processor, other configuration and Window Operating System, Laser Printer and UPS.

### 3. Field Spectrometer:

**Specifications:** Fully microprocessor controlled, rugged, UPS or generator operated monochromator based UV-Visible Absorbance spectrophotometer having in built/ PC based operation system, facility for reading micro well plate and software for all application as well extended screening, curve fit & kinetic studies with following features: read method of End point, kinetic, spectral scanning, well-area scanning, SQ Xenon flash lamp light source, , wavelength selection by monochromator from 200 – 999 nm with1 nm increments and 2.4 nm bandpass, absorbance dynamic range of 0 – 4.0 OD with 0.001 OD resolution, <1% OD accuracy at 2.0 OD and <0.5%OD repeatability at 2.0 OD having the facility of pathlength correction, monochromator wavelength accuracy of ±2 nm and repeatability of ±0.2 nm, reading of microplate types of 6- to 96 –wells, temperature control of 4°C above ambient to 50°C with ±0.5°C at 37°C and shaking facility. To be run in power: 100 – 240 Volts AC 50/60 Hz

## 4. Specification of handheld Chlorophyll meter

| | |
|---|---|
| Detector | Photodiode 300 nm to 1000 nm |
| Detection limit | |
| in vivo chlorophyll: | 0.25 ppb |
| Chlorophyl extrexted | 0.5 ppb |
| CDOM/FDOM | 0.1 ppb |
| Rhodamine WT: | 0.4 ppb |
| turbidity: | 0.5 NTU |
| Optical Brighteners | 0.5 ppm |
| Dynamic Range | 3 orders of magnitude |
| Resolution | not less than 12 Bits |
| Temperature range | 41 - 104 F, 5 - 40 C |
| Warm up time | 5 seconds |
| Calibration | single point and blank |
| Light sources | Blue or Green LED |
| Data logging | not less than 900 points |
| Weight | not more than 0.5 Kg |
| Case | IP 67 standard; dustproof/waterproof |

ACCESSORIES

Adjustable Solid Secondary Standard
12mm Test Tube Adapter
Minicell Adapter
12x75 mm Round Glass Test Tubes (12 ea)
10x10 mm Square Polystyrene Cuvette (100 ea)
10x10 mm Square Methacrylate Cuvette (100 ea)
Minicells (200 µL capacity) (1000 ea.)

## 5. Microscope with Image Analysis Video Adapter

### (A) Specification for stereoscopic zoom microscope.

1. Optical system : Parallel.
2. Magnification : 3075 X – 540 X; Coaxial episcopic illuminator 506 X – 506 X.
3. Eye piece inclination : $0^0$ – $30^{0.}$
4. Interpupillary distance adjustment : 48 – 75 mm.
5. Eyepieces : 10X, 15X, 20X & 30X.
6. Zoom range : 0.75 X – 11.25 X.
7. Zoom ratio : 15:1
8. Objectives : 0.5X, 1.0 X, 1.5 X & 2.0 X.

### (B) Video adapter for image acquisition.

1. CCD : 2/3 in. high density CCD; total number of pixels-1.4 million (Effective 1.34 million).
2. Image size /Resolution : 3840(H) x 3072(V) pixels maximum in fine mode; 1280(H) x 1024(V) maximum in quick mode.
3. Sensitivity setting : Normal, High & Maximum.
4. Exposure time : 1/12000 to 170 Sec,
5. Shooting mode : Fine - 3840 x 3072 pixels to 640 x 480 pixels.
   Quick – 1280 x 1024 pixels to 640 x 480 pixels.
6. Live image size : 640 x 512 pixels.
7. Data saving format : BMP, JPEG.
8. Operating temperature & humidity : Temperature- $0^0$ to + $40^0$ C.
   Humidity- 10 to 80 %( with out condensation)

6. **Dissecting Zoom Microscope with Video adaptor for Image acquisition**

**Specification:** 4.4:1 Zoom Stereo Microscope with built-in 3 MP digital camera and 8x-35x zoom range, 10x/20 mm high eyepoint, non-removable eyepieces, exclusive 50-75 mm interpupillary distance, 100 mm working distance, student-proof, all-in-one, "plug and play" design, no removable parts, "tool-free" tension control, built-in 25,000 hour 6500 K, true daylight, constant-color temperature power LED illumination for both reflected and transmitted light, variable light intensity control for reflected and transmitted light. Provision for separate or simultaneous use of reflected light and transmitted light, exclusive 3 (fill, top & oblique) directional reflected illumination, power switch located on back of stand, auto-shutoff after 60 minutes, sealed stage plate, sealed light control panel on rear of stage area, with notebook including software for image capture, simple measuring and annotation applications, built in SD card slot with card for image capture without the need of a computer, live (selectable PAL or NTSC) USB 2.0 output, built-in universal voltage stabilizing power supply accommodates 100-240V input, fully safety rated.

**7. Bacteriological Incubator**

Compact, space saving, UPS or generator operated, minimum power consumption (energy requirements must be specified), microprocessor controlled, programmable cooling incubator having 80-130 litre capacity, 15-45$^{o}$C temp. range with <0.2$^{o}$C accuracy, with digital timer and digital display, audio-visual and other safety features, self-diagnosis, high quality stainless steel interior, look through inner door, adjustable perforated shelves for fitting of clamps. With clamps for 250ml conical flasks. For installation in mobile laboratory. Must meet national or international standards. To run at 230 V, 50 Hz. Country of origin must be specified.

**8. Specification of the cage frame** :

**Cage Frame** : Fiberglass reinforced plastic (ISO resin) made cage frame with outer dimension of 19800 mm X 13350 mm having 6 inner chambers of 6m X 6m for holding cages of the same dimension. A total of 17 Nos. of bar, each of 450 mm width and 500 mm height, 4.0 mm thickness filled with solid thermocol of 6000 mm length with roughened top upper surface of the cage frame to prevent skidding, will be held by clamp joints.

SS rings of 25 mm NB to be fitted starting from the corner, each at 1000 mm interval on both sides of the cage frame at the upper corner.

One vertical 1219 mm high GI pipe to be fitted on the cage frame at a suitable junction as a weighing stand. At the same place upper surface of the cage frames to be extended laterally to form cantilever on all sides by 220 mm.

**Railing** : Only vertical poles of 1000 mm height at 1000 mm vertical to be fitted on the outer lateral margin of the top surface of the cage frame.

**Conditions:**

- Finished material to be supplied at Maithon Dam site within 30 days of receiving the work order
- The consignment may be rejected in the event of non-compliance with the specification
- Delay in supplying the material within the given time frame may invite deduction from the payment
- The quotation may include delivery charges at Maithon Dam Site

**Equipments and other items to be procured under the NFBSFARA project on hilsa**

| Sl No. | Name and specification | Requirement (No.) |
|---|---|---|
| 9. | **U. V. Visible Spectrometer**<br>***Specifications:***<br>**Standard desk top PC based**, **programmable system:**<br>**Wave length range:** 190 to 1100 nm; **Spectral bandwidth:** 1 nm fixed; **Optical design:** double beam, grating based; **Wavelength accuracy**: +/- 0.1 nm; **Wavelength reproducibility**: +/- 0.06 nm; **Photometric range**: -0.1 to 3A; **Photometric accuracy**: +/- 0.005 A; **Photometric reproducibility:** 0.001 A; **Noise:** <0.001 A; **Stray light across wavelength range:** <0.01%; **Detector**: Photo Multiplier Tube (PMT) /Photo diode; **Display**: LCD**; Power requirement:** 220-230 volts; Should meet all international standards and safety norms. **Cell holder:** minimum 8 numbers; **Programmable (automatic)/ manual (optional); thermo-stable**; **Quartz cell (10 mm)**: minimum two pairs to be supplied; **PC configuration:** Latest, high end, advanced CPU with 17 inch colour TFT monitor; Software for analysis, documentation, enzyme kinetics and biochemical analysis with data output facility; **Compatible colour laser printer**; **Online UPS for the equipment for minimum one hour power supply backup**; Other essential accessories should be included; **Installation**: Installation and demonstration should be done by the supplier at free of cost at this office within 10 days of the delivery of the equipment; **Warranty:** Minimum one year onsite warranty; **AMC:** Rates for post warranty period for at least 3 years to be quoted. | **One unit** |
| 10. | **Electronic precision weighing balance with battery backup (two models)**<br>***Model 1 specifications*:**<br>**Microprocessor** based; **Weighing capacity:** 3200 g; **Readability:** 0.01 g; **Linearity:** ±0.02; **Repeatability**: 0.01 g; **Mono Block**; **Pan size:** Not smaller than 170 x 190 mm; **Stabilization time:** not more than 2 seconds; **Calibration**: fully automatic; **Tare facility**; **Display**: Backlight digital; **Rechargeable battery backup for at least 8 hours**; Include a set of battery and battery charger; Overload protection; | **One each.** |

| | | |
|---|---|---|
| | **Ingress protection 65**; Piece counting, Dynamic weighing; Diagnostics; Free onsite delivery and installation; Minimum one year onsite warranty.<br><br>***Model 2 Specifications:***<br>**2. Microprocessor based**; Weighing capacity: 620 g; **Readability**: 0.001g; **Weighing pan size**: 127 x 127 mm; **Calibration:** Fully automatic; **Power supply:** 220 volt; Back light digital display; **Built in battery backup for minimum 8 hours**; Include a set of chargeable battery and charger; Dynamic weighing; Self diagnostics; **Ingress protection 54**; Free onsite delivery and installation; Minimum one year onsite warranty. | |
| 11. | **Portable electronic water depth gauge**<br>***Specifications:***<br>Suitable for precision measurement of depth of riverine, estuarine and marine environments; **Method:** Ultrasonic; **Depth range**: 0 to 500 meter; **Accuracy:** ±0.4%; **Draft Depth**: >500mm; **Display:** LCD, Multi-data, Four-digit; **Resolution:** d=1 mm or 1cm; **Power Supply**: chargeable battery with minimum 5 hour capacity; **Accessories:** Battery Charger; water proof carry case, shoulder strap and other necessary accessories for ready use; **Supply and warranty:** Free onsite delivery and demonstration with not less than one year onsite warranty. | **Two** |
| 12. | **GPS equipment**<br>***Specifications:***<br>**Display resolution:** 240 x 400 pixels; **Screen:** color TFT, **Memory:** 800MB, micro SD card compatible, light weight, Chargeable batteries with at least 10 hour usage, water proof, high sensitivity receiver, high-speed USB and NMEA 0183 compatible, base maps with map addition facility, way points, routs, track logs, automatic routing, electronic compass, barometric altimeter, accelerometer, distance covered; stopwatch, photo navigation, sun-moon information, **international tide table, area calculation**, carry case. | **One** |
| 13. | **Portable turbidity meter (nephalometer)**<br>***Specifications:***<br>**Type:** Nephalometric and ratiometric measurements with auto ranging capability; M**easurement range:** 0.0 to 4000 NTU; **Accuracy:** 0 to 500 NTU: ±2% of rdg plus 0.01 NTU; 500-1000 NTU: ±3% of rdg; **Resolution:** 0 to 9.99 NTU: 0.01; 10 to 99.9 NTU: 0.1; 100 to 1000 NTU; **Photo-detector:** silicon photodiode; **Design**: water proof; **Sample volume**: 10 to 15 ml; **Sample cell:** 20-25mm; **Response time:** less than five seconds; **Data logging**: not less than 100 points;<br>**Standards:** two set of calibration standards with 0, 10, 100, 1000 NTU; **Display:** LCD 4 digit display; **Output**: RS-232 (cable to be supplied); **Power:** rechargeable batteries with charger and one set of spare batteries; **Measuring cuvettes**: 4 numbers with light shield caps, Cuvette care kit | **One** |

<table>
<tr><td></td><td>including cloth and minimum 15 ml silicone oil; relevant literature, instruction manual Carry case: water proof, light weight; Supply and installation: Supply and installation and demonstration at the site free of cost by the supplier; Warranty: minimum one year onsite warranty.</td><td></td></tr>
<tr><td>14.</td><td>Multi parameter water quality probe and meter<br>Specifications:<br>Type: Portable; Hand held, digital display meter with clear LCD backlight monitor: Shoulder strap and multi parameter probes/ sensors ( as mentioned below); Applicable in freshwater, brackish water and seawater; Simultaneous precision measurement; Self contained, automatic cleaning facility; Battery: Chargeable batteries with charger; With 5 meter cable and standard accessories together with carry case; Calibration standards for all parameters; Software for PC application; Built in GPS receiver for location tagging; PC interface and USB cable for data management, report creation; Over 1000 full data memory; Operation manual; Delivery: Free onsite delivery and installation Training: Onsite demonstration and training to staff; Warranty: Minimum one year onsite warranty; AMC: Quote AMC rate for at least two years after warranty period.<br><br>Specifications for sensors:
<table>
<tr><th>SENSORS / PREBRS</th><th>RANGE</th><th>ACCURACY</th><th>RESOLUTION</th></tr>
<tr><td>Dissolved Oxygen</td><td>0 to 60 mg/L</td><td>± 0.1 mg/L</td><td>0.01 mg/L</td></tr>
<tr><td>Conductivity</td><td>0 to 100 mS/cm</td><td>± (0.5% of reading + 0.001 mS/cm)</td><td>0.1%</td></tr>
<tr><td>Salinity</td><td>0 to 40 ppt</td><td>± 0.2 ppt</td><td>0.01 ppt</td></tr>
<tr><td>pH</td><td>0 to 14 pH units</td><td>± 0.2 units</td><td>0.01 units</td></tr>
<tr><td>Turbidity; Self-Cleaning</td><td>0-3000 NTU</td><td>± 1% up to 100 NTU; ± 3% from 100-400 NTU; ± 5% from 400-3000 NTU</td><td>0.1 NTU from 0-400 NTU; 1 NTU for >400 NTU</td></tr>
<tr><td>Depth</td><td>0 to 200m (Vented Level)</td><td>± 0.003 to ± 0.1 meters</td><td>0.001 to 0.1 meters</td></tr>
<tr><td>Chlorophyll</td><td>Low sensitivity: 0.03-500 µg/L; Med. Sensitivity: 0.03-50 µg/L; High sensitivity: 0.03-5 µg/L</td><td>± 3% for signal level equivalents 0 of 1 ppb rhodamine WT</td><td>0.01 µg/L</td></tr>
<tr><td>Blue Green Algae (freshwater and marine)</td><td>Low sensitivity: 150-2,000,000 cells/mL; Med. Sensitivity: 150-200,000 cells/mL; High sensitivity: 150-20,000 cells/mL</td><td>± 3% for signal level equivalents of 1 ppb rhodamine WT</td><td>20 cells/mL</td></tr>
</table></td><td>One set</td></tr>
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|---|---|---|---|---|---|
| | Rhodamine WT | Low sensitivity: 0.04-1000 ppb Med. Sensitivity: 0.04-100 ppb High sensitivity: 0.04-10 ppb | ± 3% for signal level equivalents of 1 ppb rhodamine WT dye or higher using a rhodamine sensor | 0.01 ppb | |
| | Ambient light | Range: 0 to 10,000 µ mol $s^{-1}m^{-2}$ | Accuracy: ± 5% of reading | Resolution: 1 µ mol $s^{-1}m^{-2}$ | |
| | Ammonia | 0 to 100 mg/L-N | ± 2 mg/L-N | 0.01 mg/L-N | |
| | Nitrate | 0 to 100 mg/L-N | ± 2 mg/L-N | 0.01 mg/L-N | |
| | Chloride | 0.5 to 18000 mg/L | ± 2 mg/L | 4 digits | |
| | Calcium | 0 – 1,000mg/L | ± 10% of reading | 0.00 - 99.99 mg/L, 100.0 – 999.9 mg/L | |
| | Total Dissolved Gas | 400 to 1400 mmHg | ± 1.5 mmHg | 1.0 mmHg | |
| | ORP | -999 to 999 mV | ± 20 mV | 1 mV | |
| | PAR | 0 to 10,000 µ mol | ± 5% of reading | 1 µ mol | |
| | Temperature | -5 to 50 °C | ± 0.10 °C | 0.01 °C | |
| 15. | **Microtome**<br>***Specifications:***<br>Automatic, rotary type, motorized and manual sectioning, paraffin and resin embedded specimen slicing, slice thickness range of <0.5 to >100 µm; specimen retraction, protection system; two set of spare knives/blades, trim and section mode, x/y axis specimen orientation, International standard human safety features. **Supply and installation**: free onsite delivery, installation and demonstration; **Warranty**: Minimum one year onsite warranty; **AMC:** Quote AMC rate for minimum two years after warranty | | | | **One** |
| 16. | **Portable water flow probe (meter and sensor)**<br>***Specifications:***<br>**Portable water flow probe (meter and sensor) for measuring water velocity/ flows in rivers, streams, canals, estuaries, marine environments: Meter:** Polycarbonate material; IP 67 protection; portable **Display:** Graphics color LCD display; PC interface, USB Connector; **Units of measure:** Velocity: ft/s, m/s, cm/s, mm/s; Flow: $ft^3$/sec, $m^3$/min, $m^3$/sec, $m^3$/hour, $m^3$/day, liters/s, liters/min; **Depth**: ft, m, cm, mm; **Data Storage:** Not less than 10 metering sites with minimum 32 vertical profiles per site; **Real time and profiling modes**; Stream Flow Calculation: Mean-section, Mid-section; Self diagnostics; **Sensor:** Electromagnetic; **Range:** 0 to 6 meters per second; **Accuracy:** ± 2% of reading through the range 0 to 3 m/s; plus Zero Stability ± 4% of reading through the range 3 to 6 m/s; plus Zero Stability; Zero Stability: ± 0.015 m/s; **Resolution:** 0.001 m/s; **Power:** Rechargeable batteries with minimum 15 hours backup; Battery charger; **Accessories:** Five meter cable all standard accessories for | | | | **Two** |

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| | ready use; **Delivery and warranty:** free on site delivery, demonstration and minimum one year onsite warranty; **AMC**: Quote AMC rate for two years after warranty period. | |
| 17. | **Thin sectioning and polishing machines for fish otolith study**<br>***Specifications:***<br>**Sectioning unit:** Bench top design; **Speed range:** from 0-600 rpm with digital display; **Power**: 220/240v AC; High toque DC motor to allow multi-blade cutting**; Position accuracy:** 0.005mm; **Max. travel distance**: 25 mm by LCD digital micrometer (50 mm with adjusting sample holder); LCD digital micrometer with reading to 0.001 mm and accuracy of 0.003 mm; **Max wheel saw:** 4" diameter; digital micrometer and digital speed display controller; **Automatic shut off**; **Cutting blades:** 4"x 0.35 mm x 0.5" Diamond, SiC, and Alumina; **Three sets of blade flanges:** diameter at 35 mm, 46mm, and 62 mm; **Aluminum and graphite sample holder;** Wax and cutting coolant.<br>**Precision lapping and polishing unit:** Up to 3'' samples; 220/240v power; 0-70 rpm plate speed; 0-10 hour timer; bench top design; non groove lapping plates; plain polishing plates; polishing cloths; polishing liquids supplied.<br>**Bonding unit and hot plate:** for mounting sections on slides.<br>**Accessories:** All standard accessories should be included for immediate use; **Delivery and installation:** Free onsite delivery, installation, demonstration and training to staff by the supplier.<br>**Warranty:** Minimum one year warranty on all components<br>**AMC:** Quote AMC rate for minimum two years after warranty period. | **One set** |
| 18. | **Thermostatic heating oven with timer**<br>***Specification:***<br>**Thermostatic, precision electric heating oven**; Automatic temperature control and timer; C**hamber size:** 24" x 36" x 24"; **Temp. Range:** up to 350 $^{o}$C; **Controls:** digital with hot air circulation, ventilator; **Build:** double walled, insulated, stainless steel inner chamber with 3 removable shelves; **Power:** operate on 220 volts, Single Phase, 50 Hz, AC supply;<br>**Display:** digital display and precision controls. | **One** |
| 19. | **Digital SLR camera with standard accessories**<br>***Specifications:***<br>**Resolution:** 18 effective mega pixels; **Sensor**: 23.5 x 14.9 mm; Full HD recording in 24, 25 and 30fps; **Lens:** Kit II, 18-135mm zoom, f/3.5 or less to 5.6 or more, vibration reduction; **Auto and manual focusing;** Image sensor cleaning; **Auto lighting optimizer**; **Viewfinder:** Live view, eye-level pentamirror single-lens reflex; quick return reflex mirror; instant return lens aperture; **Release mode**: Single frame, continuous L, continuous H, self-timer, delayed remote; Quick-response remote; Quiet shutter release; interval timer photography supported; **Metering:** TTL exposure metering, matrix and | **One** |

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| | centre weighed metering; **Modes:** Auto; programmed; shutter-priority; Aperture-priority; Manual; maximum scene modes; night vision; movie; **ISO sensitivity**: ISO 100 to 6400; **Focus:** auto focus, manual focus, lens servo, focus lock; **Flash:** Built in; **Monitor:** Vari-angle TFT with 170° viewing angle, 3 inch size; **USB port**; **Accessories:** minimum 8Gb SD memory card; **Chargeable battery with one spare set**; **Battery charger**; **Original shoulder strap**; USB cable, audio/ video cable, **eyepiece cap, rubber eye cup**, **body cap, lens hood**, software CD, User's Manual; **light weight original carry case**; **Colour:** body and lens black colour; **Delivery and warranty:** Free onsite delivery and demonstration; minimum one year onsite warranty. | |
| 20. | **Life Jackets**<br>***Specifications:***<br>Free size; light weight, not more than 1-1.5 kg weight; easy to wear without help, buoyancy not less than 90kg as per latest MSC 200 (80) regulations; water proof material; salinity, oil and fungus proof; fitted with retro reflective material; heavy duty nylon adjustable straps with easy fasten/ unfasten buckles; comfortable to wear for both men and women. **Delivery**: Free onsite delivery; **Warranty**: for minimum one year. | **Eight numbers** |
| 21. | **Salinometer**<br>***Specifications:***<br>**Type:** Microprocessor based, handheld, portable meter to measure salinity; **Range:** 0 to 50 ppt; **Temperature range:** -10 to 110 ºC; **Resolution:** 0.1 ppt; **Accuracy:** ±1% full scale; **Temperature compensation:** automatic; **Temperature co-efficient:** Adjustable from 0 to 3% per ºC; **Normalization temperature:** 20 or 25 ºC selectable; **Cell constant:** 1.0; **Conductivity to salt conversion factor:** Nonlinear compensation; **Calibration:** 1 point; **Power:** Chargeable batteries with charger; **Display:** 4 digit LCD, single line; **Standards:** Calibration solutions to be supplied; Carry case; **Delivery:** free onsite delivery and demonstration. **Warranty:** Minimum one year onsite warranty. | **One** |
| 22. | **Microscope with high resolution image processing accessories and software**<br>***Specifications:***<br>Infinity corrected optical system; siedentopf design, anti-fungus type; **Eye pieces:** 10x (2 PCS) with both sides diopter adjustment, anti fungus type; **Objectives:** Plan achro 1x, 2x, 4x, 10x, 40x, 60x, 100x-oil; Achro phase 10x, 40x, Plan Fluor 40x, Achromat 60x. **Stage**: Re-focusing type; Universal condenser turret with 1 bright field, 3 phase contrast position; 1 dark field position and 1 closed position. **Illumination:** white LED lamp with 60,000 hours or more life. **Fluorescence attachment:** Mercury illumination; In-built noise terminator mechanism; Filter blocks for Blue, Green, and UV; **Image acquisition system:** CCD camera capable of handling bright field, fluorescence, DIC, dark field; not less than 5 million pixel resolution; live display mode; digital zoom up to 16x, interval shooting : 5 sec. – 12 hr intervals, exposure control: 130 micro second-60 | **One set** |

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| | sec.<br>**Image processing software:** Latest advanced, Time Lapse Imaging, Video recording, Z-Stack, Annotation, Macro, Report Generation facility, Large Image, Vector layer & Multi-Dimensional File Format, Measurement of different shapes, sizes, lengths, counting, etc. with direct uploading to MS Excel.<br>**Image storage and editing:** Branded computer with at least Intel i5 Processor, 2 GHz or more speed, 4 GB RAM, 500 GB HDD, with Original Windows 7 O.S., PCI-E SLOT along with LCD/LED 17 inch; 600 VA UPS.<br>**Conditions**: Microscope , camera & software and accessories should be of same manufacturer for compatibility;<br>**Delivery:** Free onsite delivery, installation, demonstration and training by supplier; **Warranty:** Not less than one year onsite warranty and servicing after supply; **AMC**: Quote AMC rate after warranty for at least 3 years. | |
| 23. | **Plankton net fitted with flow meter**<br>**Specifications:**<br><br>**1. With 60 microns mesh, synthetic net material, 30-35 cm mouth diameter**; brass or stainless steel mouth-ring with facility for two point fastening of flow meter; mouth-ring with 3 point stainless steel wire bridle for fastening tow rope; 20 cm (approx.) stabilized dacron collar for maintaining shape; Triple stitched for long lasting; reinforced with 3-4 sewn seam, no baconing effect in sewn seam; 2 meter length from mouth to cod end; 4 inch long stabilized dacron cod end collar for fitting cod end assembly; **Cod end assembly**: **0.5 L capacity, hard PVC collection bucket** with vents same micron as the net; PVC ring and hose clamp (to attach to cod end of net); the collection bucket can easily be screwed on to the PVC ring. **Tow rope**: 15 m long HDPE/ PUC made.<br>**Flow meter:** Mechanical with one way clutch; stainless steel main rotor and idler gear shaft; Length 21.3 cm; Standard rotor 6.98 cm diameter; depth rating unlimited (free flooding); six digit data display counter wheels; Universal stainless steel bridle allowing two point fastening across the mouth ring of the plankton net; measurement range 10 cm/sec to 7.9 m/sec with operation manual; include one or two spare rotors.<br><br>**2. With 335 microns mesh, synthetic net material 50 cm mouth diameter**; brass or stainless steel mouth-ring with facility for two point fastening of flow meter; mouth-ring with 3 point stainless steel wire bridle for fastening tow rope; 20 cm (approx.) long stabilized dacron collar for maintaining shape; Triple stitched for long lasting; reinforced with 3-4 sewn seam, no baconing effect in sewn seam; 2.5 meter length from mouth to cod end; 4 inch long stabilized dacron cod end collar for fitting cod end assembly; **Cod end assembly**: **1.0 L capacity, hard PVC collection** bucket with vents same micron as | **Two** |

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| | the net; PVC ring and hose clamp (to attach to cod end of net); the collection bucket can easily be screwed on to the PVC ring; **Tow rope**: 15 m long HDPE/ PUC made.<br>**Flow meter:** Mechanical with one way clutch; stainless steel main rotor and idler gear shaft; Length 21.3 cm; Standard rotor 6.98 cm diameter; depth rating unlimited (free flooding); six digit data display counter wheels; Universal stainless steel bridle allowing two point fastening across the mouth ring of the plankton net; measurement range 10 cm/sec to 7.9 m/sec with operation manual; include one or two spare rotors. | |
| 24. | **Sedgwick Rafter Counter Cell**<br>***Specifications:***<br>Slide size approx. 1" x 3"; 1 ml total cell volume; 20 x 50 x 1 mm cell area; Laser etched or platinum grids 1mm x 1mm with a volume of 1 micro-litre per square. | **Two** |
| 25. | **Portable aerators for fish transportation**<br>**Specifications:**<br>Portable, self contained, water proof, rechargeable, battery operated aerators; adjustable power; battery backup for 8-10 hours once fully charged; fine bubble air stones; non kinking, flexible air pipe of 5 meter long with each aerator. | **Four numbers** |
| 26. | **Statistical software for multivariate analysis**<br>***Specifications:***<br>CANOCO-5 Statistical software for canonical correspondence analysis; Original with CD and user manual; compatible with Microsoft Windows OS. | **Two user license** |

## Computer hard ware/ software

| No. | Item and specification | Requirement |
|---|---|---|
| 27. | **Desktop computer**<br><br>***Specification (As per DGS & D rate contract):***<br><br>**CPU:** Intel Core i7-2600, 3.4 GHz, 8 MB Cache.<br>**Chipset:** Intel Q67 Express on OEM Motherboard.<br>**Bus Architecture:** 4 PCI (PCI/ PCI Express)<br>**Memory:** 2 GB 1066 MHz or higher DDR3 RAM with 8 GB Expandability<br>**Hard Disk Drive:** 320 GB, 7200 rpm Serial ATA HDD or higher<br>**Monitor:** 47 cm (18.5 inch) LED or TFT Digital Colour Monitor<br>**Keyboard:** 104 keys.<br>**Mouse:** Optical with USB interface Bays: 3 Nos.<br>**Ports:** 6 USB Ports (with at least 2 in front), audio ports for microphone and headphone in front.<br>**Cabinet:** Small form factor (Max. 16 Litres).<br>**DVD ROM Drive:** 8X or better DVD ROM Drive.<br>**Networking facility:** 10/100/1000 on board integrated Network Port with remote booting facility remote system installation, remote wake up, out of band management using any standard management software.<br>**Operating System:** Windows 7 Professional preloaded, as specified, with Media and Documentation and Certificate of Authenticity.<br>**OS Certifications:** Windows 7 Professional OS.<br>**Power Management:** Screen Blanking, Hard Disk and System Idle Mode in Power On, Set up Password, Power supply SMPS Surge protected.<br>Preloaded Software: Latest version licensed antivirus. | **One** |
| 28. | **UPS**<br><br>***Specification:*** 1 kva UPS with 20 minute backup with 4 plug in facility and surge protection | **One** |
| 29. | **Printer**<br><br>***Specification:***<br><br>**Automatic duplexing (both side printing)** | **One** |

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| | **Print speed:** Up to 35 ppm<br>**Document delivery speed:** First page out: as fast as 8 seconds from Ready mode<br>**Print resolution:** Up to 1200 by 1200 dpi; HP Pro Res 1200; Resolution Enhancement technology (REt)<br>**Processor:** 600 MHz<br>**Memory:** 128 MB (expandable up to 384 MB via 1 open 144-pin DIMM slot)<br>**Durability ratings:** Recommended monthly volume: 750 to 3,000 pages; 7 Duty cycle: 50,000 pages<br>**Paper**<br>**Input**: 50-sheet multipurpose tray 1250-sheet tray 250-sheet multipurpose tray 1 250-sheet tray 2, 500-sheet tray 3<br>Output 150-sheet output bin | |
| 30. | **Laptop computer**<br>***Specification (As per DGS & D rate contract)***<br><br>**Processor:** Mobile Intel core i7-2620 M, 2.7 GHz with 4MB L3 Cache<br>**Chipset and Motherboard:** Intel 6 series OEM motherboard.<br>**Memory:** 4 GB DDR3-1333 RAM expandable upto 8 GB.<br>**HDD:** 128GB/256GB SSD Storage<br>**Display:** 12.1-13.3 inch (TFT)/LED Display.<br>**Resolution:** 1366 x 768 pixels<br>**Video controller:** Mobile Intel HD Graphics, 128 MB or higher of shared system memory.<br>**Wireless Connectivity:** Integrated Bluetooth; WiFi, LAN.<br>**Webcam, microphone, stereo speaker:** Integrated.<br>**Key Board:** Backlight/ Standard Key Board with Touch Pad/Track Point.<br>**Expansion Port:** USB 2, USB 3; Ethernet, microphone, headphone/ stereo, Docking Connector, travel Battery Connector and other standard features.<br>**Weight:** Ultra Portable/ less than 1.8 kg<br>**Operating system:** Microsoft Windows 7 professional<br>**Antivirus Software:** Latest Version with 3 years license.<br>**Power Supply:** 230V, 50 Hz AC Supply; **Battery life minimum 8 hrs**. operation; complete with battery charger/adaptor.<br>**Carry case:** Original/ same brand<br>**Add on items:** 8 mp web cam with glass lens of OEM; Strolly-bag for laptop. | **One** |

| Equipments/ Instruments | | | |
|---|---|---|---|
| Sl. No. | Name of the instrument/ facility | Specifications | No. |
| 31. | Battery operated top pan balance | (i) Capacity 100 g, accuracy ±0.01 g, digital display, both battery and electric operation. (ii) Top pan balance with digital display, Capacity 1000 g, battery and electric operation, accuracy ±0.1 g | 2 (1 each) |
| 32. | Digital pH meter | With pH electrode, ATC probe, pH range: 0-14, resolution: 0.01 pH. Accuracy: ±0.01 pH, ORP range: ±2000 mV, temperature range: 0-100°C. Integral electrode holder & adaptor. | 2 |
| 33. | Tissue homogenizer | Dispersing and homogenizing device, power output: 850 watts, Volume range: 0.1-20,000 ml, Speed range: 10,000-35,000 rpm, with speed adjustment, dispersing tool for small quantities, stand | 1 |
| 34. | Deep fridge (–20°C) | –20°C freezer, vertical type, capacity at least 14 ft³, number of shelves at least 3, approx. depth x height x width = 29 x 60 x 28 inches. | 1 |
| 35. | Quartz distilled water plant | All quartz double distillation unit, demountable boiler panel, vertical type, distilled water output capacity 1.5 L/ h along with standard accessories, power supply unit and spares (one extra heating mantle) | 1 |
| 36. | Mini gel apparatus | Mini gel apparatus, gel size: 10 x 8 cm, 10 well combs, power supply, other standard accessories | |
| 37. | Water bath | Multi-chamber digital water bath (2-3 Chambers having independent controls for operating at different temperatures), microprocessor PID control for 0.1 °C accuracy, Timer, Alarm, Precise temperature control up to 99 °C, bath capacities at least 10 L, seamless stainless steel bath | |
| 38. | Pipette controller | Macro pipette controller (two sets), 0.1 to 100 ml pipetting | 2 |
| 39. | Western blot (electrotransfer system) | Electrotransfer system for mini gel size 8 x 7 cm, single gel with accessories and power supply system | |
| 40. | PA system for conference room | Chairman unit (1 no.), delegate units (17 nos.), central amplifier (1 no.) & PA recorder (1 no.) and standing microphone (1 no.) for podium. Long gooseneck microphone, LED indicator ring, diet cast aluminium cabinet, rack mountable central amplifier, headphone output. | set |